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June 10, 2010

Marlene H. Dortch
Office of the Secretary
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

RE: Public Notice and ET Docket No. 10-123

Dear Madame Secretary:

I am writing you on behalf of the Institute for Computational Earth System Science, as well as, the Marine Science and Geography departments, here at the University of California, Santa Barbara. My work at UCSB involves each of these units and I am writing to strongly urge you against the reallocation of the 1675-1710 MHz frequency band from meteorological to broadband use.

UCSB uses the 1675-1710 MHz band to receive the NOAA POES and Orbview 2 satellites. These data are used for ocean science of the West Coast. The data from the SeaWiFS sensor is collected and sent to Orbimage, which processes it for Goddard Space Flight Center for distribution. We have already suffered months of lost data due to of intermodulation interference with cell phone transmitters on campus near our satellite receiver dish. This is without the companies using the 1675-1710 MHz band. We have invested significant funds into this system to have high resolution imagery in real time. Additionally, other groups have used the data for snow melt and vegitation analyses.
In the 1675-1710 MHz band range, the following frequencies are used by L-Band direct reception ground stations:

1685.7 ± 3 MHz
1691.0 ± 256 KHz
1698.0 ± 1.5 MHz
1702.5 ± 1.5 MHz
1707.0 ± 1.5 MHz

Although the frequency range that L-Band direct reception uses can be quantified exactly above, a band sharing agreement in the 1675-1710 MHz range may not be effective because broadband wireless equipment has poor filtering, and will therefore increase noise harmonics that will spill over into the satellite data range that is needed, rendering the data noisy and useless to us and our peers.

Due to the public's daily use of software such as Google Earth, and websites provided by agencies such as NASA and NOAA, there is a perception that all Earth Science satellite data can be received online. This is unfortunately not true, and a dangerous misconception. Data received via the internet has the following drawbacks:

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1. It is not "real-time." Real-time data is defined as data that is received as close to simultaneously as is possible to when the satellite images an area. A Direct Broadcast satellite transmits the "picture" it sees immediately after it sees it. Data received from NOAA and NASA via the internet may not be available for hours, sometimes days, after it is received. This renders it useless for operational applications.
2. All data products may not be available. Each satellite takes multiple bands of data. It is then processed into different resolutions and end products using scientific algorithms. Data available via the Internet is usually already processed to certain end-points, which may or may not fit the user's needs, and currently NOAA does not disseminate all possible products. By receiving the raw data directly from the satellites, users can customize products, even create their own products. This kind of decentralized approach is essential to the scientific process, and is continuously driving innovation in the field.
3. Internet data transmission required huge amounts of bandwidth, not only by the user, but by the organization serving the data. We cannot speak with authority on NOAA's ability to provide thousands of large data sets daily to hundreds of users, but we do not think it currently exists, and would require a huge infusion of capital investment for upgraded IT infrastructure.
4. Internet data is not dependable during times of crisis, when operational agencies (research, government, and military) need it the most. A direct reception ground station can provide continuous data coverage in the absence of internet connectivity and grid power. In an emergency such as fire, flood, earthquake, or war, a direct reception ground station is essential, which is why agencies with operational missions across the globe continue to purchase such stations.

The 1675-1710 MHz frequency band is critical to UCSB's research mission. If the frequency is transferred to the broadband community, irreparable damage will be done to the U.S. Direct Reception community and the multiple Federally-funded research projects utilizing the real-time data.

Respectfully,

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